Software Product Description

PRODUCT NAME: HP Reliable Transaction Router Version 5.2 for HP Linux x86_64 bit servers **82.43.05**

DESCRIPTION

HP Reliable Transaction Router (RTR) is fault tolerant transactional messaging middleware used to implement large, distributed applications using client/server technology. This version of Reliable Transaction Router enables enterprises to deploy distributed applications on Linux x86_64 bit servers.

Reliable Transaction Router enables distributed applications to run in heterogeneous environments, allowing client and server applications to interoperate on the supported Linux, Windows, HP-UX, and OpenVMS platforms.

Reliable Transaction Router provides APIs for development of distributed applications using languages such as C and C++,exit with all-or-nothing transaction semantics as well as an optional message broadcasting capability. C API calls are also available from a command line interface. The C++ API provides an object-oriented interface for developing user and system management applications. Applications can also use the X/Open XA interface.

Reliable Transaction Router provides a reliable, transparent, dynamic message-routing system that includes both a transactional and non-transactional message control system. RTR transaction management supports two-phase commit of distributed transactions.

Reliable Transaction Router implements automatic software fault tolerance and failure recovery in multinode environments by adapting to many kinds of hardware (CPU), communications, application software, and site failures. Automatic failover and recovery of service operate by exploiting redundant or alternate hardware and network links. If alternate hardware or network links are not available, RTR automatically continues service when the CPU or network link becomes available.

Reliable Transaction Router applications are developed and deployed using a three-tier client/router/server software model. Client applications call the RTR client software tier, which passes messages to the router tier of the software. Transaction messages are routed reliably and transparently, based on message content, to the appropriate processes in the server tier. Server applications typically execute transactions against a database and return results back to clients.

A single physical node may run one, two, or three tiers of the RTR client/router/server software model. Each of the three software tiers may consist of one or more nodes. The software model and its content-based routing present a virtual rather than physical network to the application developer. This model enables application software to be independent of physical hardware (CPU) location, network naming conventions, and communications protocol. This facilitates single-node development, and transparent scalability of applications in complex network configurations.

Reliable Transaction Router software fault tolerant features such as router failover and shadow-server processing provide continuous computing services with completion of in-progress transactions despite single or multiple points of failure in the distributed client/server environment. Callout servers implement user authentication control, and concurrent servers provide dynamic message load balancing for high performance. High performance transactional messaging is implemented as a full-duplex conversation with remote server procedures using real-time flow control techniques. Use of these features generally requires no special user application programming logic.

The RTR system management interface is available as a command line interface and a web-based interface. The web-based interface provides a point and click style of managing RTR from a browser. The browser interface provides monitoring and management of the RTR configuration with the RTR Manager.

Both interfaces allow the creation, deletion, and modification of application networks (facilities) within a network, and permit control of distributed RTR processes from a single system in the distributed environment. The RTR system management interfaces are used to bind the physical hardware (CPU and communications) to a virtual network namespace and are transparent to the applications software. A monitoring utility can be invoked to report application performance information on a local or remote node.

Reliable Transaction Router is independent of forms and window management systems and databases. Multiple databases and other resource managers (for example, flat-file systems) can be updated within the same distributed transaction.

Reliable Transaction Router is intended for distributed applications that require continuous computing services and transaction integrity (for example, trading systems, banking systems, electronic commerce, payment systems, transportation systems, and telecommunications systems).

Reliable Transaction Router can also be used for applications that require reliable messaging and fault tolerant application control over LANs or WANs. Reliable Transaction Router provides the enabling technology for applications requiring fully distributed client/server models.

Reliable Transaction Router provides an interface for controlling transaction commitment directly with an XA-compliant resource manager, such as ORACLE9.

License Types

Reliable Transaction Router for HP Linux x86_64 bit has two license types. The Backend license provides full client/router/server functionality. It is required for nodes configured as routers or servers, and can also be used for nodes configured as clients.

The Frontend license provides client application functionality only, in a production environment, plus a single-node development and testing environment for RTR applications.

Backend Features

- Provides transparent, content-based transaction routing for client/server applications.
- Provides publish/subscribe broadcast (nontransactional) messaging for delivery to multiple subscription domains within a virtual network.
- Allows user-defined partitioned data models (content-based routing) for improved performance of user applications.
- Acts as a layer between client and server applications, thus decoupling the end-to-end relationship normally required by user application control. This provides the application developer with a single system view of the programming environment.
- Ensures atomicity of transactions (all or nothing) by using a two-phase commit protocol for transactional message delivery among one or more server applications.
- Offers at-most-once semantics for valid transactions. This includes specially flagged transaction replay to a surviving server application, or a later instantiation of that server on the same or a different machine on the virtual network.
- Supports multiple (concurrent) servers as well as multithreaded clients and servers.
- Supports user authentication control (callout servers) with consistent reply in shadow environments.
- Provides disaster protection against site failure by mirroring transactions in shadow-server environments. Automatic resynchronization of shadow pairs after recovery is provided transparently to the application.
- Maintains performance scaling over a wide range of configurations allowing easy horizontal expansion of both hardware systems and application software.
- Enables automatic failover/failback of server applications on multiple backend systems while remaining transparent to client applications executing on remote systems. RTR can maintain application operation in many instances of single or multiple failures in a widely distributed software/hardware configuration.
- Includes system management interfaces for online control of virtual networks from any workstation or terminal with the appropriate privileges. Monitoring of statistics, software and hardware states, and clients and servers is provided from local and remote nodes.
- Uses TCP/IP as the underlying network transport.
- Enables the operator to manage partitions, providing the ability to:
  - — Create or delete a partition with a user-specified name.
  - — Define a key range definition.
  - — Select a preferred primary node.

  - — Select the failover precedence option to choose between local and cross-site shadow failover.
  - — Suspend and resume operations to synchronize database backups with transaction flows.
  - — Override RTR's automatic recovery decisions to allow manual special recovery procedures.
  - — Specify retry limits for problem transactions.
- Enables the operator to selectively inspect, modify the state of, or remove transactions from the journal or the running RTR system.
- Supports anonymous clients, that is, allows clients to be configured with wildcarded node names.
- Supports compression and decompression of broadcast event and transaction reply data to improve network throughput.
- Supports failover between multiple IP addresses for any host machine with multiple network adapters.

Frontend Features

- Provides the ability for the client to start transaction branches, where the global transaction may be controlled by RTR.
- Provides the necessary environment to run Reliable Transaction Router client applications under HP Linux x86_64 bit as part of a Reliable Transaction Router application network (facility).
- Provides client functionality in a production environment.
- Uses TCP/IP IPv4 as the underlying network transport.
- Supports transactional and broadcast (nontransactional) messages.
- Supports router load balancing in a facility.
- Supports automatic router failover in the event of a communication link failure.
- Supports Reliable Transaction Router system management operations.

HARDWARE REQUIREMENTS

Any HP x86_64 server that supports the Red Hat Enterprise Linux Version 5.2, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 6.0, 6.1, 6.2, 6.3, or 6.4 operating system.

SOFTWARE REQUIREMENTS

Reliable Transaction Router runs with Red Hat Enterprise Linux Advanced Platform/Server versions 5.2, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9 and 5.10 and Red Hat Enterprise Linux versions 6.0, 6.1, 6.2, 6.3, and 6.4.

The following table lists version of Red Hat Cluster suite and Red Hat Global File System (GFS) supported for Red Hat Enterprise Linux Advanced Platform/Server of the operating system:

Red Hat Enterprise Linux Advanced Platform/Server	Red Hat Cluster suite GFS
5.2, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9 or 5.10	GFS is bundled with Red Hat Linux
6.0, 6.1, 6.2, 6.3, or 6.4	GFS2 is bundled with Red Hat Linux

OPTIONAL SOFTWARE

- Remote execution software to support system management from remote nodes.
- Microsoft-supported Windows-based browser for system management running on a Windows PC: Internet Explorer Version 6.0 or higher.
- Use of the RTR XA interface requires ORACLE9 Version 9.2.0.2.

Reliable Transaction Router applications can be written using the RTR C or C++ APIs and compiled using the C or C++ compiler that comes with the Linux systems on which RTR is supported.

GROWTH CONSIDERATIONS

The minimum hardware/software requirements for any future version of this product may be different from the requirements for the current version.

DISTRIBUTION MEDIA

The RTR software and documentation for Reliable Transaction Router is available on CD-ROM.

SOFTWARE LICENSING

This software is furnished only under a license.

HP RTR is Per Socket Licensed (PSL) with one license required for each socket which is active in the system or hard partition. If additional processors are later added to the system or hard partition, each socket requires an additional PSL.

ORDERING INFORMATION

Licenses

HP-Linux x86_64 Licenses	
PSL RTR BE Linux 64 Proliant LTU	BA955AC#404
HP RTR Back End Linux 64 Trade-in LTU	BA955ACN
PSL Trade-in RTR BE Linux 64 LTU	BA955ACN#404
HP RTR Front End Linux 64 Proliant LTU	BA957AC
PSL RTR FE Linux 64 Proliant LTU	BA957AC#404
HP RTR Front End Linux 64 Trade-in LTU	BA957ACN
PSL Trade-in RTR FE Linux 64 LTU	BA957ACN#404

Media and Documentation

HP Linux x86_64 Media and Online Documentation	
HP RTR Back End Linux x86_64 Media	BA498AA
HP RTR Front End Linux x86_64 Media	BA499AA

SOFTWARE PRODUCT SERVICES

A variety of service options are available from HP. For more information, contact your local HP account representative or distributor. Information is also available on www.hp.com/hps/software.

SOFTWARE WARRANTY

This software is provided by HP with a 90 day conformance warranty in accordance with the HP warranty terms applicable to the license purchase.

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